NAVFAC Southwest

Update on the Remedial Action in Parcel B

SVE System Operation and Monitoring at IR Site 10

TPH Investigation at the Combined Site (CAA-21, CAA-22, AOC-46-A, AOC-46-B, AOC-46-C, and AOC 24-C)

Hunters Point Naval Shipyard BCT Meeting

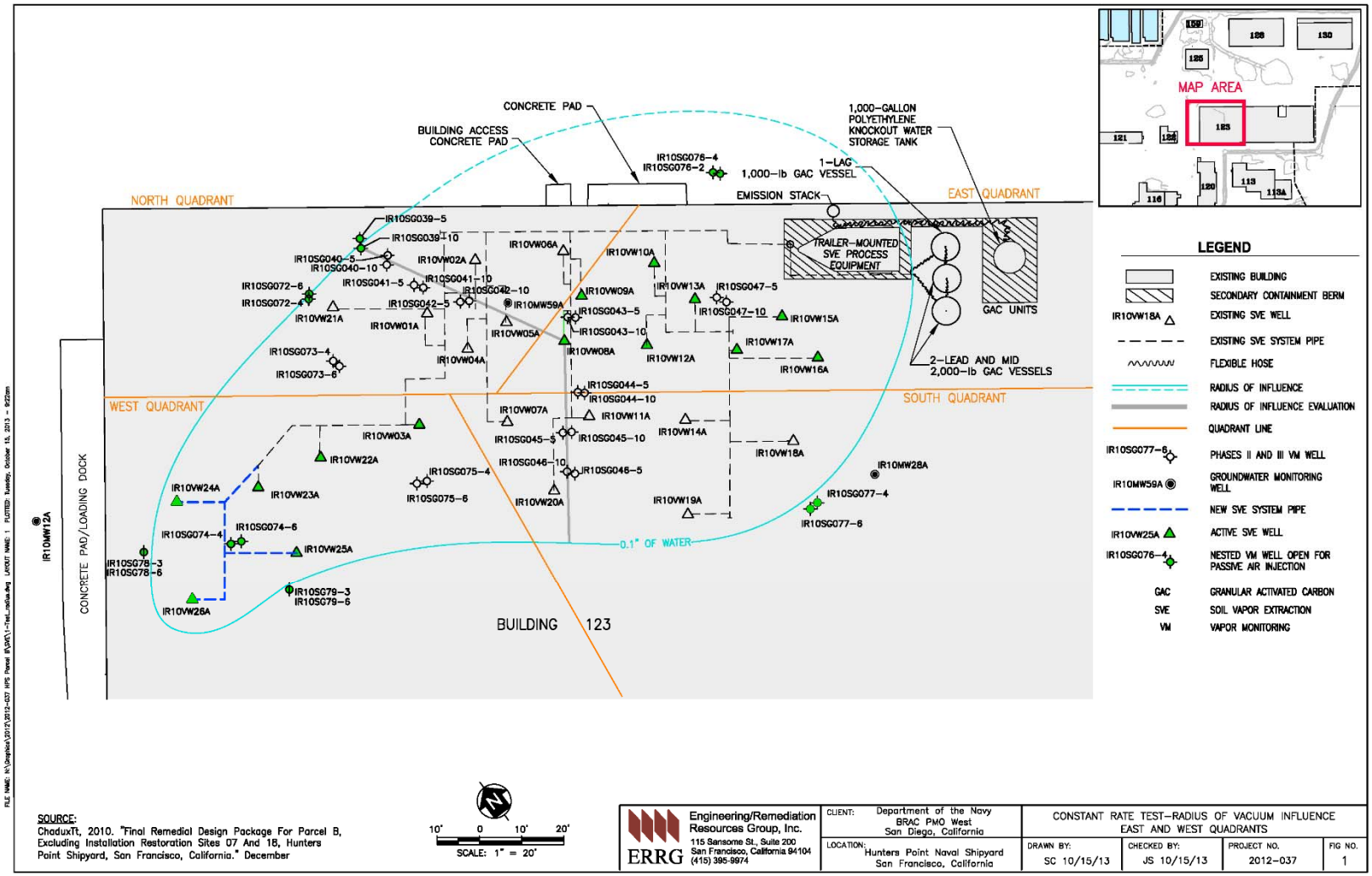
8/7/2014

SVE in IR-10: Presentation Outline

Operations Summary for IR-10 SVE system

- **Operations Summary to Date**
- **Treatment Performance Summary to Date**
- **Schedule Update**

SVE in IR-10: Review of System Configuration - East and West Quadrants



SVE in IR-10: Operations Summary to Date

- Startup testing and optimization completed on Aug. 26, 2013.
- Routine system operations started Aug. 27, 2013.
- East and West quadrants operated Aug. 27, 2013 – Jan. 8, 2014.
  - Initial influent TCE concentrations (2,200 µg/m^3) reduced to 580 µg/m^3 before configuration change.
- North and South quadrants, and the West quadrant hot spot area (near IR10VW23A, -24A, -25A, and -26A) operated Jan. 8, 2014 – Apr. 4, 2014.
  - Initial influent TCE concentrations (1,300 µg/m^3) reduced to 480 µg/m^3 before configuration change.
- East and West quadrants operated Apr. 4 to Jul. 18, 2014.
  - Initial influent TCE concentrations (1,300 µg/m^3) reduced to 440 µg/m^3. Influent sample was collect on Jul. 18, 2014 just before shutdown of the SVE system.

SVE in IR-10: Operations Summary to Date (cont.)

- As of July 18, 2014:
  - –354 days of continuous SVE system operation.
  - –14.8 lbs. of total VOCs removed, with 8.0 lbs. removed during routine operations (i.e., following startup and optimization).
  - –14.3 lbs. of TCE removed, with 7.7 lbs. removed during routine operations.
  - –SVE system influent sample collected on Jul. 18, 2014 measured TCE concentration of 440 µg/m3 (industrial SGAL is 7,870 µg/m^3; residential SGAL is 690 µg/m^3).
  - –System was shut down on July 18, 2014 due to inefficient operation (low influent concentrations)
- Per the SAP, if SVE mass removal rate is inefficient, system operation should cease to allow for rebound and rebound monitoring should commence.
- ***The RD States: "The SVE system will be operated until SGALs are achieved or until systematic asymptotic conditions are reached without reasonable indication of further reduction based on system monitoring results."***

SVE in IR-10: Operations Summary to Date (cont.)

- Following a 2-week (approx.) “resting” period, rebound monitoring will commence
  - Baseline (post-treatment) samples will be collected from all 60 site-wide monitoring points, followed by at least 3 months of monthly samples to monitor rebound at 36 monitoring points (sampling frequency maybe be adjusted based on the rate of rebound).

SVE in IR-10: Operations Summary to Date (cont.)

- Per the SAP, rebound monitoring will continue for at least 3 months following post-shutdown sampling:
  - If COC concentrations in soil gas are rebounding and exceed PALs (690 µg/m^3 for TCE), then operation of the SVE and treatment system will resume.
  - If COC concentrations in soil gas are rebounding, but do not exceed PALs, then monthly monitoring sampling will continue, but operation of the SVE and treatment should not resume unless PALs are exceeded.
  - If COC concentrations in soil gas are stable for 3 consecutive months, then the Navy will submit a request to the BCT to permanently cease operation of the SVE system and/or monthly monitoring.
  - Rebounding is defined in SAP as the condition where COC concentrations increase by more than 10 percent over a 3-month period following shutdown of the SVE treatment system.

- ***The RD States: "When subsurface soil gas concentrations have been reduced to below the remediation goals or reach asymptotic conditions, closure monitoring will be conducted 3 months after SVE system shutoff."***

SVE in IR-10: Treatment System Performance Summary: Influent, Effluent, and Treatment Data

Date	Days of Operation	Influent TCE Conc. (µg/m^3)	Total Influent VOC Conc. (µg/m^3)	Effluent TCE Conc. (µg/m^3)	Total Effluent VOC Conc. (µg/m^3)	Removal Efficiency (%)	Est. VOC Removal Rate (lbs./day)
Startup Testing: East and West Quadrants SVE Well Configuration							
7/16/13	1.0	7,700	8,060	38	39	99.52	0.17
7/18/13	2.7	5,000	5,060	21	22	99.56	0.12
7/22/13	3.7	18,000	18,762	--	--	--	0.43
8/1/13	8.7	6,400	6,400	1.6 J	3.6	99.94	0.15
8/7/13	14.5	13,000	13,000	1.4 J	1.4	99.99	0.31
8/14/13	21.5	1,800 / 2,100	1,818 / 2,119	<0.27	0.0	100.00 / 100.00	0.06
Startup Testing: North and South Quadrants, and West Quadrant Hot Spot SVE Well Configuration							
8/19/13	21.7	7,500	7,540	<0.27	0.0	100.00	0.16
8/26/13	28.7	2,400	2,419	<0.27	0.0	100.00	0.06

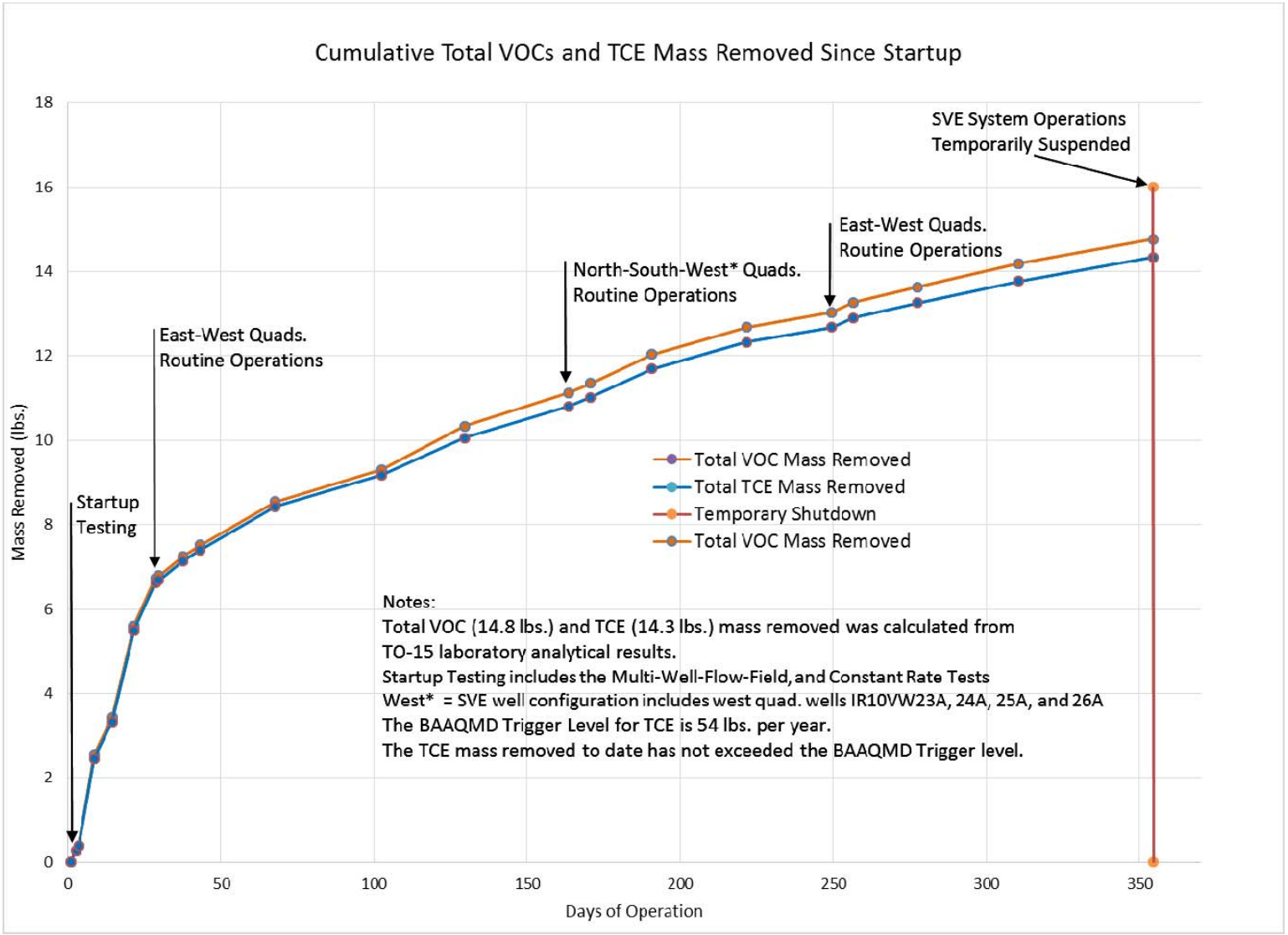
SVE in IR-10: Treatment System Performance Summary: Influent, Effluent, and Treatment Data (cont.)

Date	Days of Operation	Influent TCE Conc. (µg/m³)	Total Influent VOC Conc. (µg/m³)	Effluent TCE Conc. (µg/m³)	Total Effluent VOC Conc. (µg/m³)	Removal Efficiency (%)	Est. VOC Removal Rate (lbs./day)
Routine Operations: East and West Quadrants SVE Well Configuration							
8/26/13	28.7	2,400	2,419	<0.27	0.0	100.00	0.06
8/27/13	29.7	2,200	2,225	<0.27	1.8	99.92	0.06
9/4/13	37.7	1,800	1,800	<0.27	5.4	99.70	0.05
9/10/13	43.4	1,600	1,616	--	--	--	0.042
10/4/13	67.8	830	834.6	18	18	97.84	0.022
11/8/13	102.6	1,000	1043.4	15	15.2	98.54	0.030
12/5/13	129.6	670 / 690	686.9 / 696.9	9.4	10.9	98.42 / 98.44	0.018
1/8/2014	163.6	580	586.9	15	34	94.21	0.015

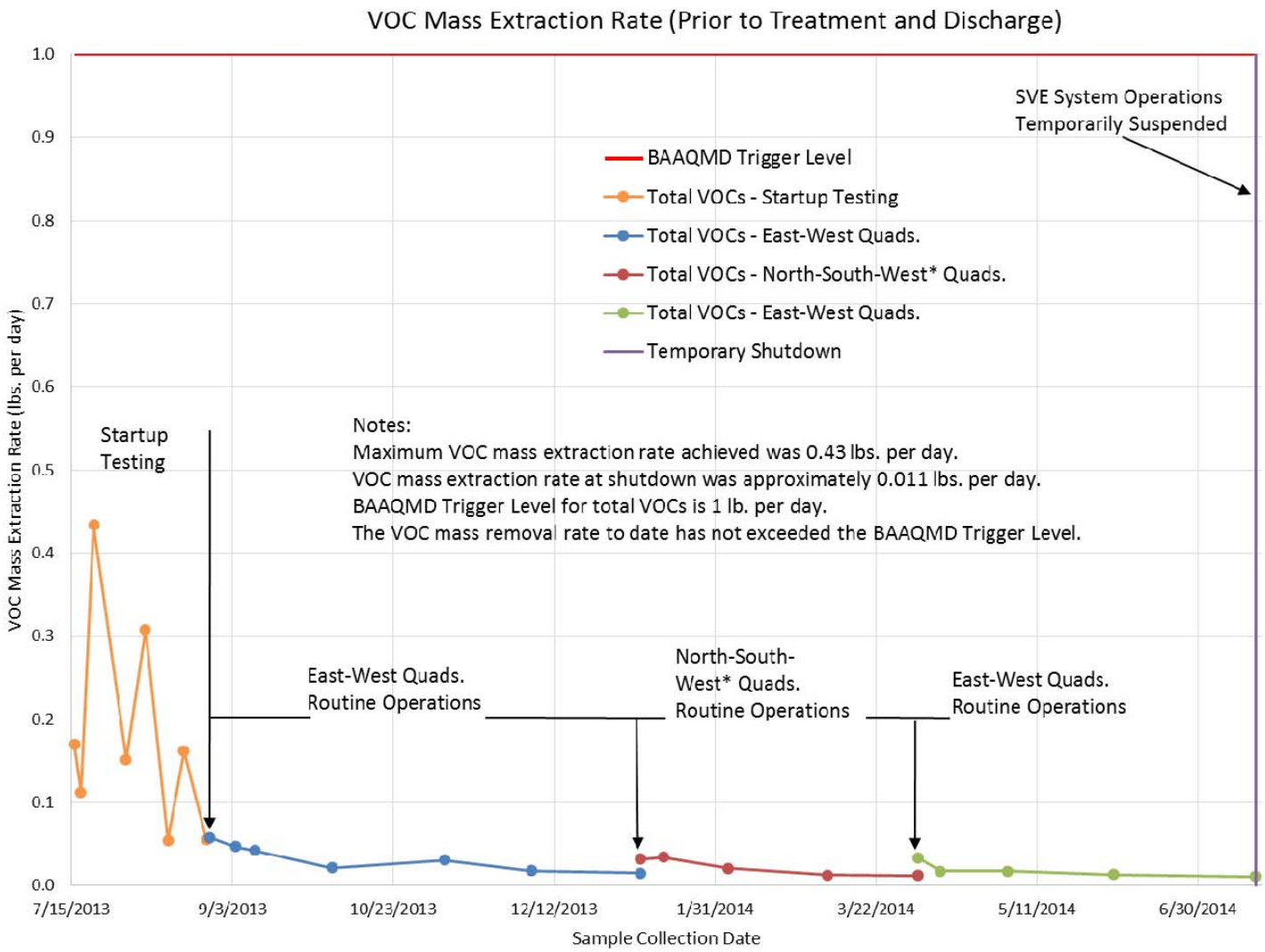
SVE in IR-10: Treatment System Performance Summary: Influent, Effluent, and Treatment Data (cont.)

Date	Days of Operation	Influent TCE Conc. (µg/m³)	Total Influent VOC Conc. (µg/m³)	Effluent TCE Conc. (µg/m³)	Total Effluent VOC Conc. (µg/m³)	Removal Efficiency (%)	Est. VOC Removal Rate (lbs./day)
Routine Operations: North and South Quadrants, and the West Quadrant Hot Spot Well Configuration							
1/8/2014	163.6	1,200	1,221	15	34	97.21	0.032
1/15/2014	170.8	1,300	1,309	83	85.1	93.50	0.034
2/4/2014	190.7	840	847.6	52	52	93.87	0.021
3/7/2014	221.6	520	522.4	5.2 J	6.4	98.77	0.013
4/4/2014	249.6	480	487.9	7.3	12.1	97.52	0.012
Routine Operations: East and West Quadrant SVE Well Configuration							
4/4/2014	249.6	1,300	1,330.9	7.3	12.1	99.09	0.033
4/11/2014	256.6	790	795	6.4	8.3	98.95	0.017
5/2/2014	277.5	680	696.3	4.0 J	27.2	96.10	0.017
6/4/2014	310.6	570 / 550	573.6 / 553.4	7.3	7.9	98.62 / 98.57	0.013
7/15/2014	354.4	440	443.5	4.1 J	4.1	99.08	0.011

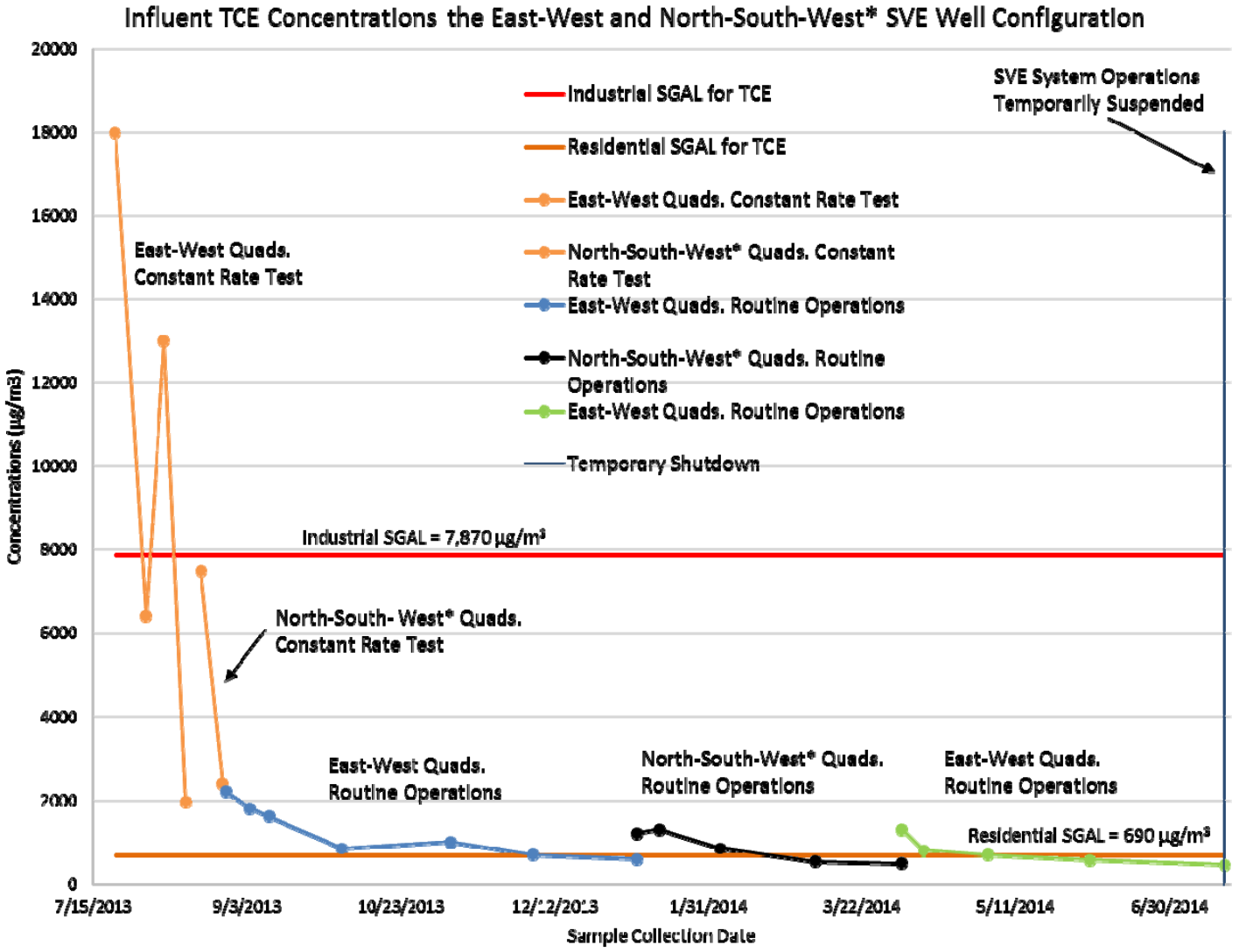
SVE in IR-10: Treatment System Performance Summary



SVE in IR-10: Treatment System Performance Summary (cont.)



SVE in IR-10: Treatment System Performance Summary (cont.)



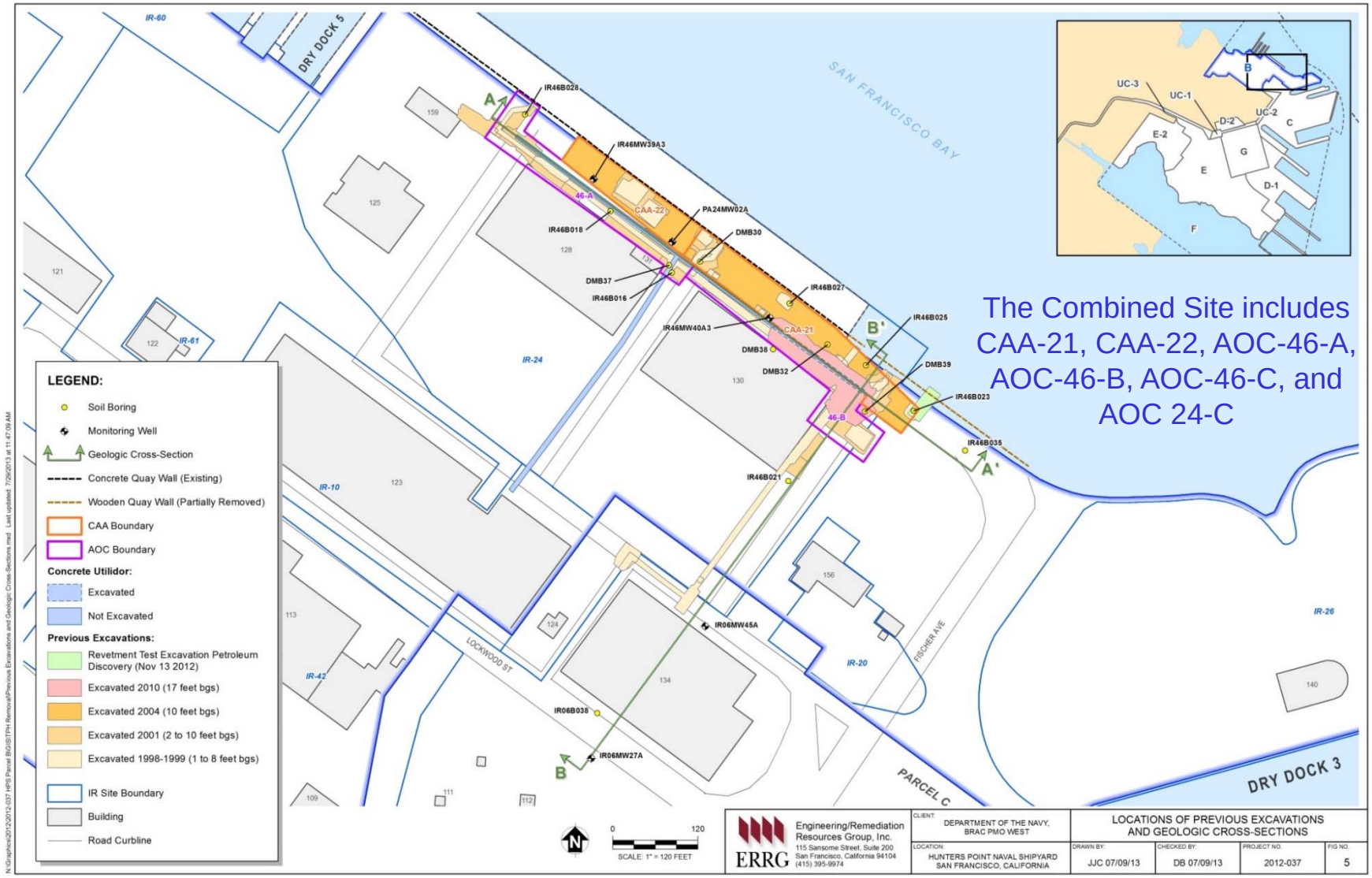
SVE in IR-10: Schedule Update

- System shut down to allow for rebound — Jul. 18, 2014
- Collect soil vapor samples from all 60 system probes to measure rebound — Aug. 11-16, 2014
- Collect soil vapor samples from select (36) system probes to measure rebound — Sep – Dec, 2014
- Note: Rebound monitoring will proceed as specified in the SAP. If the rate and magnitude of rebound exceeds allowable criteria, the system will be turned back on and monitored. Otherwise, the system will be recommended for permanent shut down and decommissioning.

Investigation Summary and Recommended Corrective Actions for the Combined Site

- Summary of Data Gaps Investigation Results
- Recommended Corrective Actions for Site Closure
- Schedule Update

DGI at Combined Site: Map of Combined Site



The Combined Site includes CAA-21, CAA-22, AOC-46-A, AOC-46-B, AOC-46-C, and AOC 24-C

DGI at Combined Site: Summary of Tasks Completed to Date

Task 1: Refine the extent of remaining TPH/PAH contamination in soil within the Combined Site

- 40 borings advanced in December 2013 up to 40 feet bgs
  - 141 soil samples analyzed for TPHd and TPHmo
  - 31 samples analyzed for TPHg
  - 27 samples analyzed for PAHs
- 11 step-out borings advanced in February 2014 to up to 25 feet bgs
  - 30 soil samples analyzed for TPHd and TPHmo
  - 5 samples analyzed for TPHg

- Data were presented at two previous BCT meetings (01/2014 and 04/2014) and shared with the RWQCB as they were collected

DGI at Combined Site: Summary of Tasks Completed to Date (cont.)

Task 2: Evaluate potential TPH migration from the Combined Site to San Francisco Bay

- 13 pore water samples (12 samples + 1 duplicate) collected in December 2013 via hydropunch and analyzed for TPH
  - Locations spaced approximately 50 feet apart, approximately 1 foot into the sediment
- 3 step-out pore water samples (2 samples + 1 duplicate) collected in February 2014 via hydropunch and analyzed for TPH

- Data were presented at two previous BCT meetings (01/2014 and 04/2014) and shared with the RWQCB as they were collected

DGI at Combined Site: Summary of Soil Sampling Results

General Conclusion:

- Clean backfill between 0 and at least 8 feet bgs has not been re-contaminated by deeper contamination

PAH Results:

- PAH contamination is non-contiguous and limited in extent
- Extent of PAH contamination is delineated

TPH Results (Soil):

- TPH contamination is laterally widespread and predominantly present in the 10-15’ bgs range
- TPH contamination extends to 18’ bgs (<PALs in 23’ samples) in limited areas
- The extent of TPH contamination is not laterally bounded to the southwest of the Combined Site (beneath Building 130 as you move inland from the bay)
- Deep (25’ bgs) TPHd contamination reported in areas beneath the future revetment structure

DGI at the Combined Site: Summary of Pore Water Sampling Results

TPH Results (Pore Water):

- Total TPH PAL exceedances were identified in two areas on the bay side of the quay wall
- Pore water samples show TPH-mo is the primary constituent at both locations
- Soil samples collected inland of the quay wall at these locations show that soil inland of the quay wall does not appear to be a source to pore water; source is likely TPH in soil on the bay side of the quay wall
- Both areas are limited in horizontal extent, as they are bounded by the steep grade of the shoreline and the quay wall; bounding samples were collected during the second phase of the DGI to verify extent parallel to the shoreline

DGI at the Combined Site: Recommended Corrective Actions for Site Closure

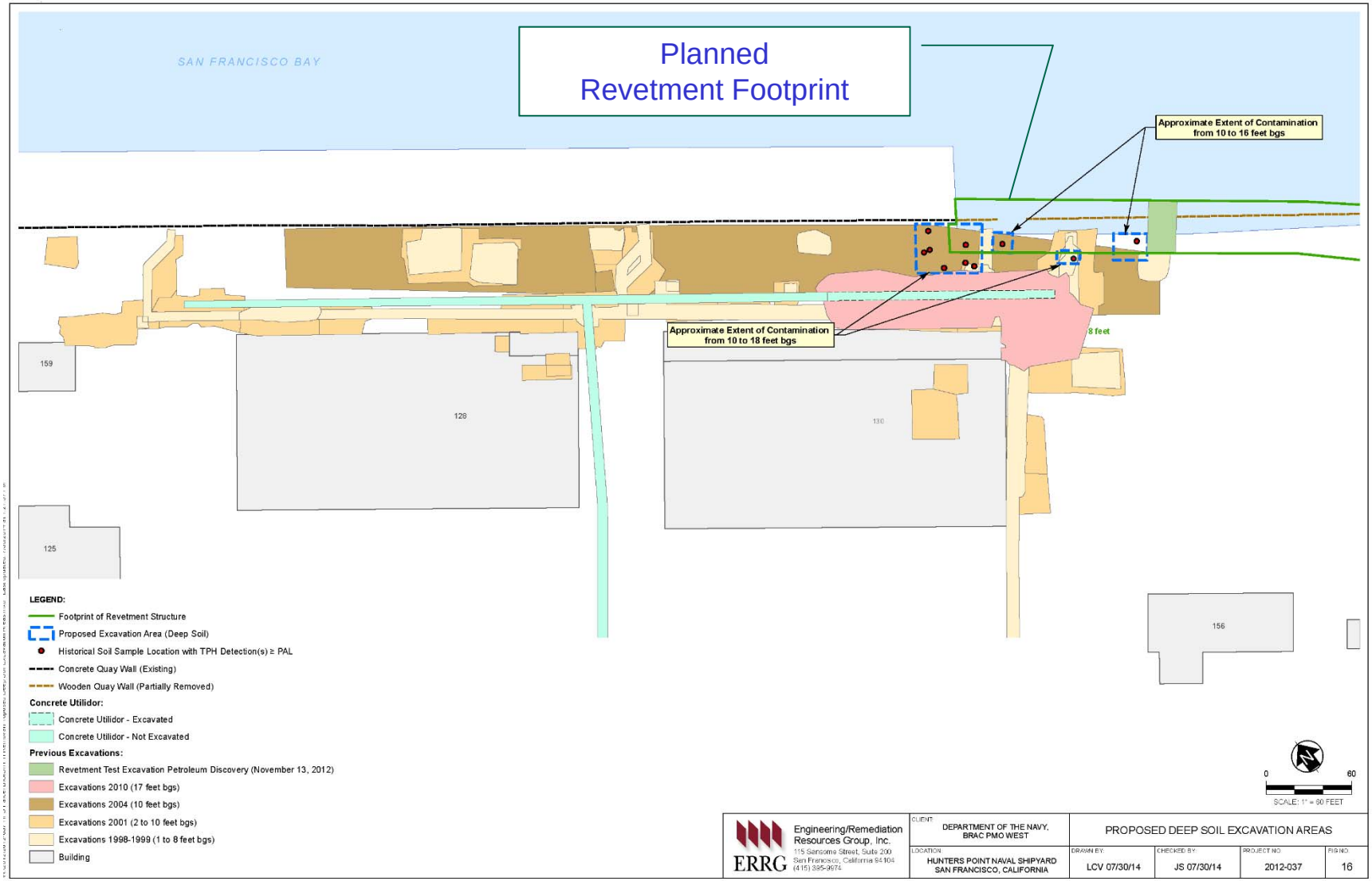
Shallow Soil (<10' bgs)

- No further action is required to address TPH and PAHs in shallow soil at the Combined Site
- Shallow soil is clean backfill

Deep Soil (>10' bgs)

- Generally, soil deeper than 10 feet bgs is not a source of contamination to the bay, and can be managed in place
- Four areas of TPH contamination delineated during the DGI are present within the footprint of the future revetment structure (see next slide)
- The Navy will perform deep surgical excavations (between 16' and 18' bgs) to remove the four areas prior to proceeding with revetment construction
- Excavation work will be combined with RA construction to expedite completion of the work
- Excavation shoring and dewatering plans have been developed and will be included in a RAWP addendum

DGI at the Combined Site: Deep Soil Excavation Areas



DGI at the Combined Site: Recommended Corrective Actions for Site Closure (cont.)

Shoreline Sediment

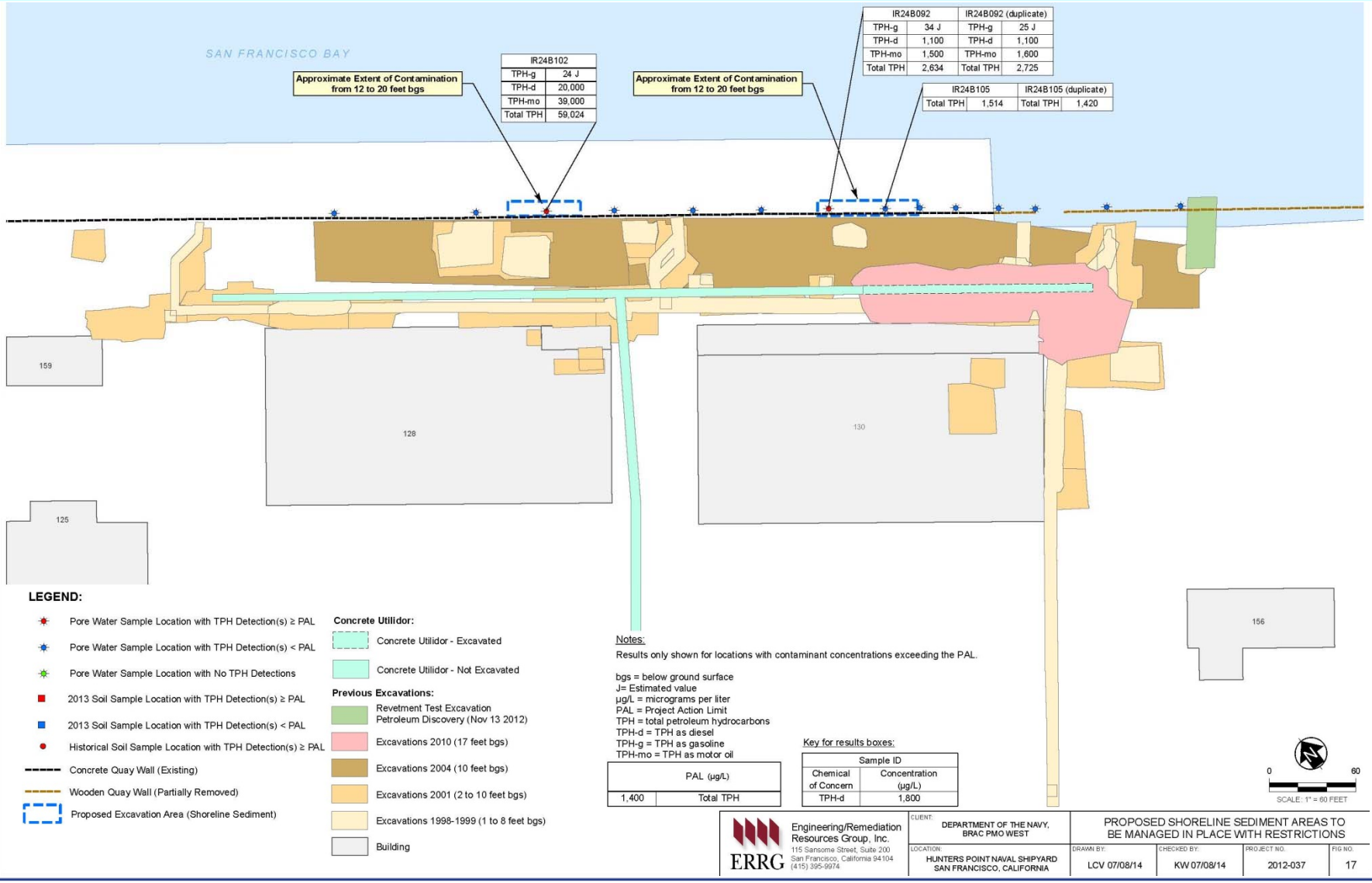
- Shoreline sediment on the bayward side of the concrete quay wall is not currently a source of contamination to San Francisco Bay that could potentially impact ecological receptors, except in two areas of limited extent (see next slide).

- It is estimated that these two areas constitute approximately 288 cubic yards of TPH-contaminated shoreline sediment.

- Removal of these two areas would provide minimal benefit relative to the effort, logistical challenges, short-term public safety and environmental risks, and cost required for the effort (i.e., Demolition and reconstruction of the quay wall and deck and excavation within the bay)

- Given the limited extent of the two areas, and the minimal potential impact they pose to San Francisco Bay, the Navy is proposing to leave the subject areas of shoreline contamination in place to attenuate naturally and focus resources on addressing areas of the Combined Site with higher volumes of contamination with the potential to impact the bay.

DGI at the Combined Site: Soil and Shoreline Sediment Areas to be Managed In Place



DGI at the Combined Site: Schedule Update

Submit Draft DGI Tech Memo	Aug 18, 2014
Submit Draft RAWP Addendum	Sep 2014 (TBD)
Submit Final DGI Tech Memo	Oct 1, 2014
Submit Final RAWP Addendum	Oct 2014 (TBD)
Remove shoreline TPH contamination	Oct/Nov 2014 (TBD)
Complete 230 feet of Revetment	Nov/Dec 2014 (TBD)